

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
9 September 2005 (09.09.2005)

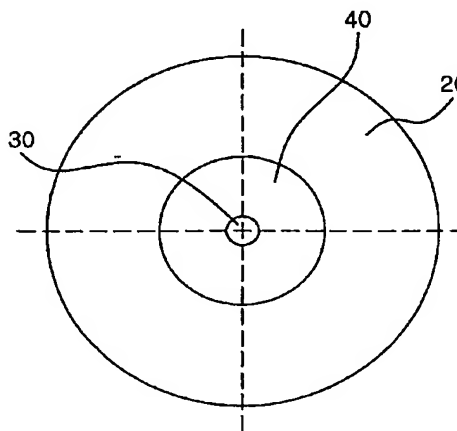
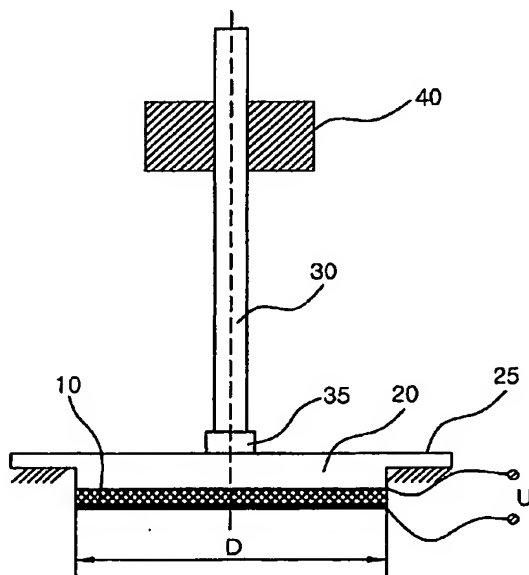
PCT

(10) International Publication Number  
**WO 2005/083874 A1**

- (51) International Patent Classification<sup>7</sup>: **H02N 2/04**
- (21) International Application Number:  
PCT/KR2005/000353
- (22) International Filing Date: 4 February 2005 (04.02.2005)
- (25) Filing Language: Korean
- (26) Publication Language: English
- (30) Priority Data:  
10-2004-0014050 2 March 2004 (02.03.2004) KR  
10-2004-0040895 4 June 2004 (04.06.2004) KR
- (71) Applicant (for all designated States except US): Piezoelectric Technology Co., Ltd. [KR/KR]; 983D, Hongneung venture town, KIST, 39-1 Hawolgok-dong, Seongbuk-gu, Seoul 136-791 (KR).
- (72) Inventor; and  
(75) Inventor/Applicant (for US only): YOON, Seong Yil [KR/KR]; 102-101, Samsung Apt., 45 Chang-dong, Dobong-gu, Seoul 132-040 (KR).
- (74) Agent: DARAE PATENT FIRM; 10th Floor, KIPS, 647-9, Yeoksam-dong, Kangnam-ku, Seoul 135-980 (KR).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,

[Continued on next page]

(54) Title: SMALL PIEZOELECTRIC OR ELECTROSTRICTIVE LINEAR MOTOR



(57) Abstract: The present invention provides a small piezoelectric/electrostrictive ultrasonic linear motors which are installed in cell phones or PDAs, etc. to drive their camera lenses. In the present invention, a movable shaft (30) is coupled to a unimorph or bimorph, which is made by attaching a piezoelectric or electrostrictive substrate to an elastic body (20) (metal), so that a movable body (40) fitted over the movable shaft (30) is linearly moved along the movable shaft (30) by vibration of the piezoelectric or electrostrictive substrate, thus simplifying a manufacturing process, being easily practicable according to a basic principle, and having superior characteristics.



FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO,  
SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,  
GQ, GW, ML, MR, NE, SN, TD, TG).

— *before the expiration of the time limit for amending the  
claims and to be republished in the event of receipt of  
amendments*

**Published:**

— *with international search report*

*For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.*